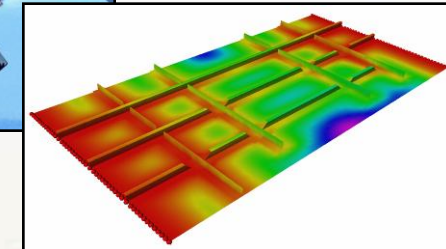
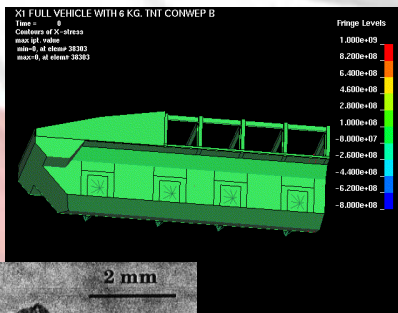


# Chemical and Materials Information Management



## for Sustainable Engineering and Design

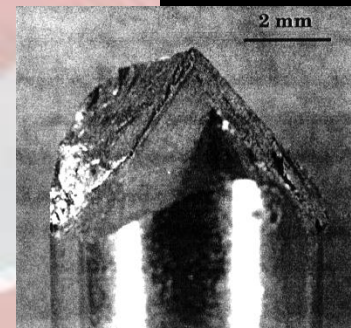


Army Corrosion Summit 2010

February 11, 2010

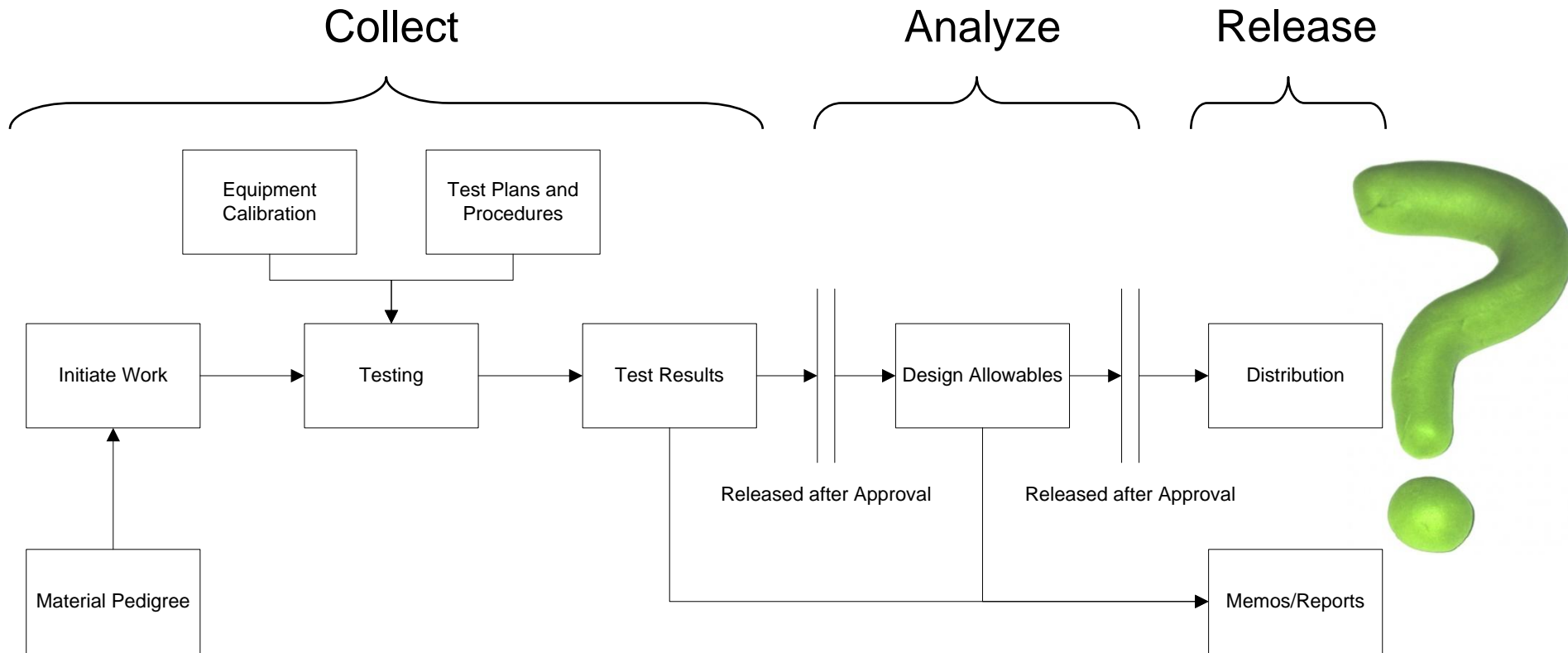
Session C – RDT&E

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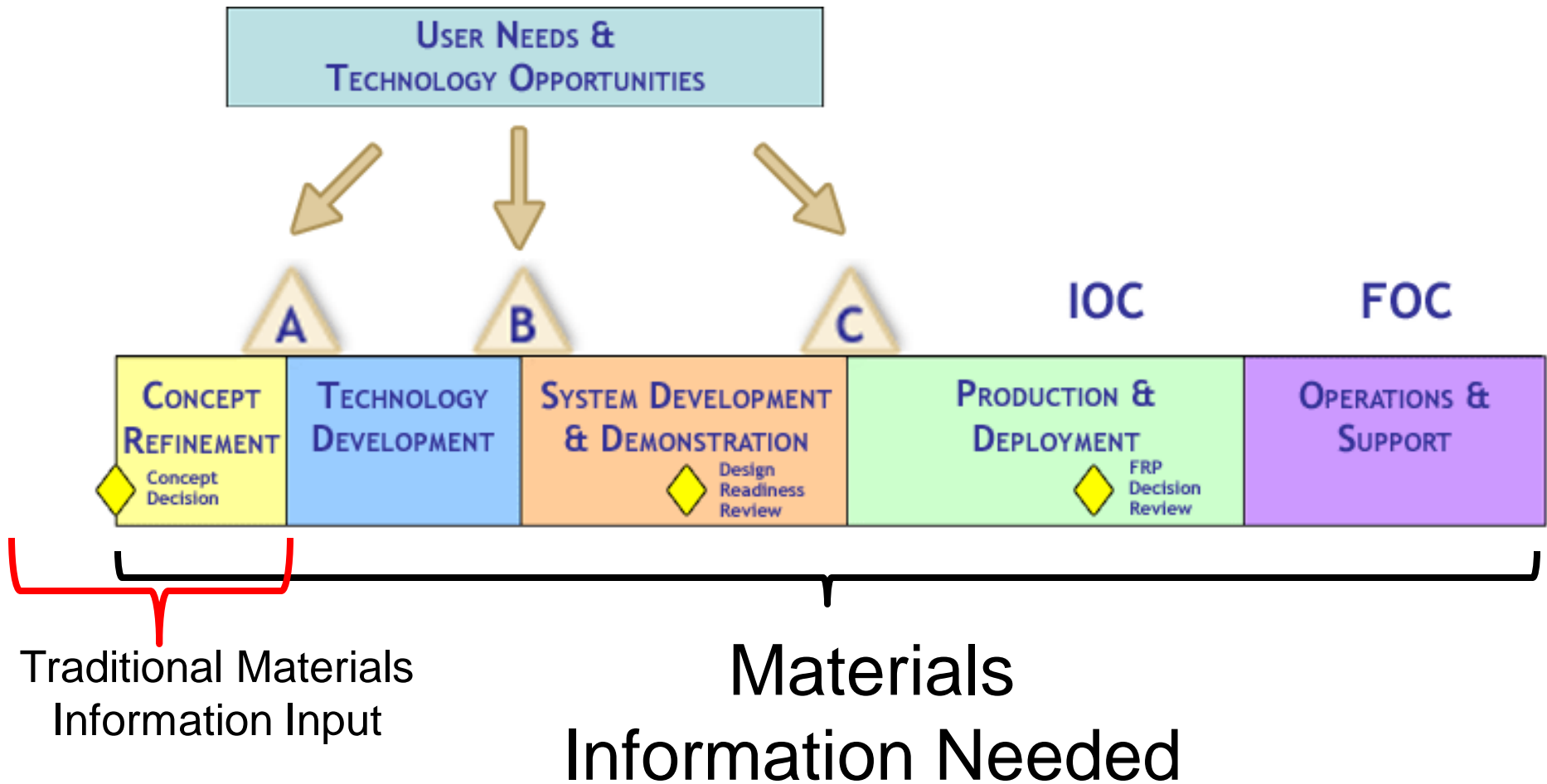
Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
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a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

# Life of Material Data



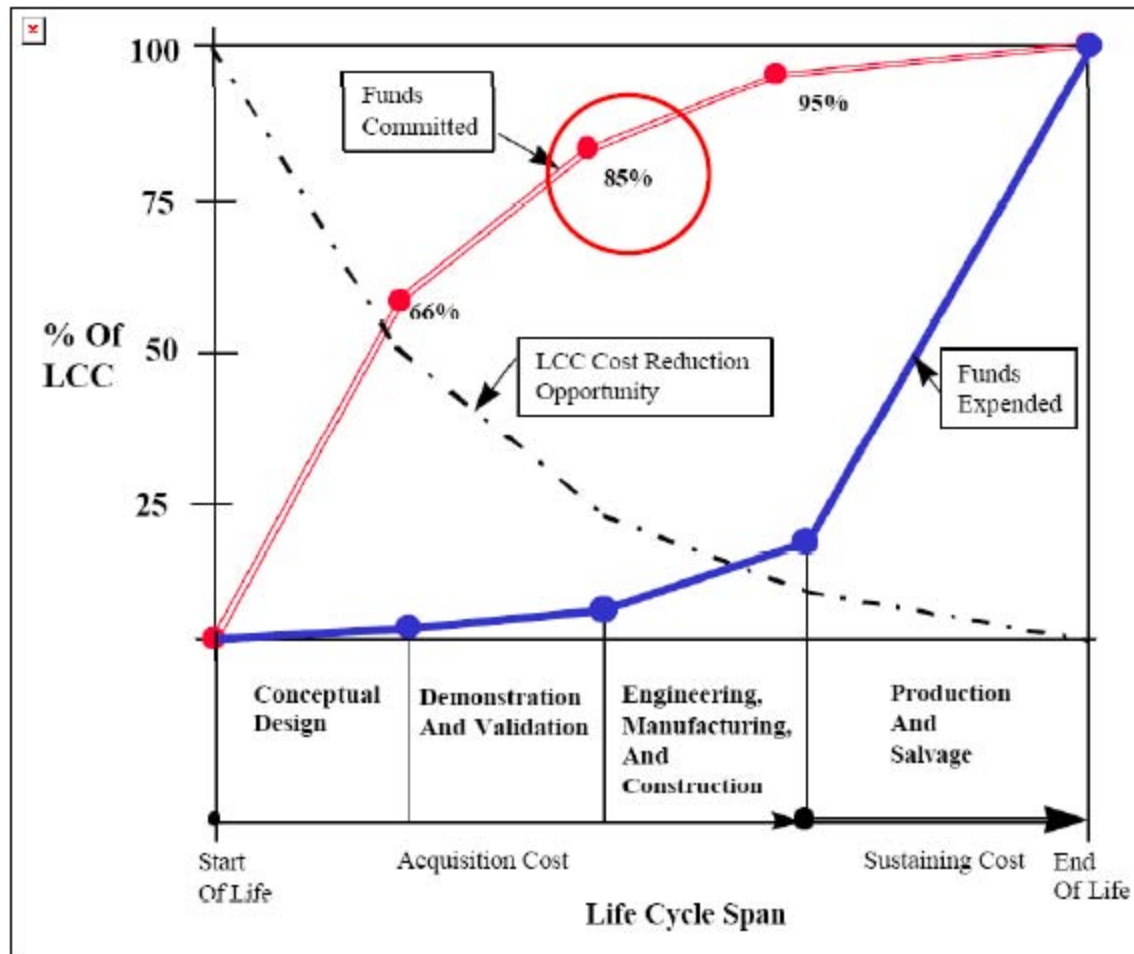
Includes both material property and process data

# Acquisition Life Cycle



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# Impact of materials and process information on product lifecycle



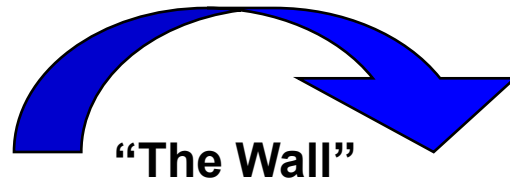
**Project Funding Trends by Commitment and Expenditure of Lifecycle Cost (LCC)**

**85% of life cycle costs and environmental impact is built-into products during design**

From: H. P. Barringer & D. P. Weber (1996) "Lifecycle Cost Tutorial"

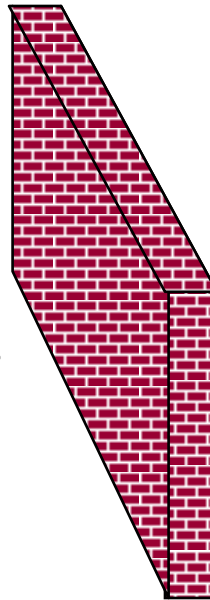
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# ***Chemical & Materials Dilemma***



## **Technology Development**

- Cycle times 7-30 Years
- Developed independent of application
- Empirical developments
- Modeling
- Multi-scale issues

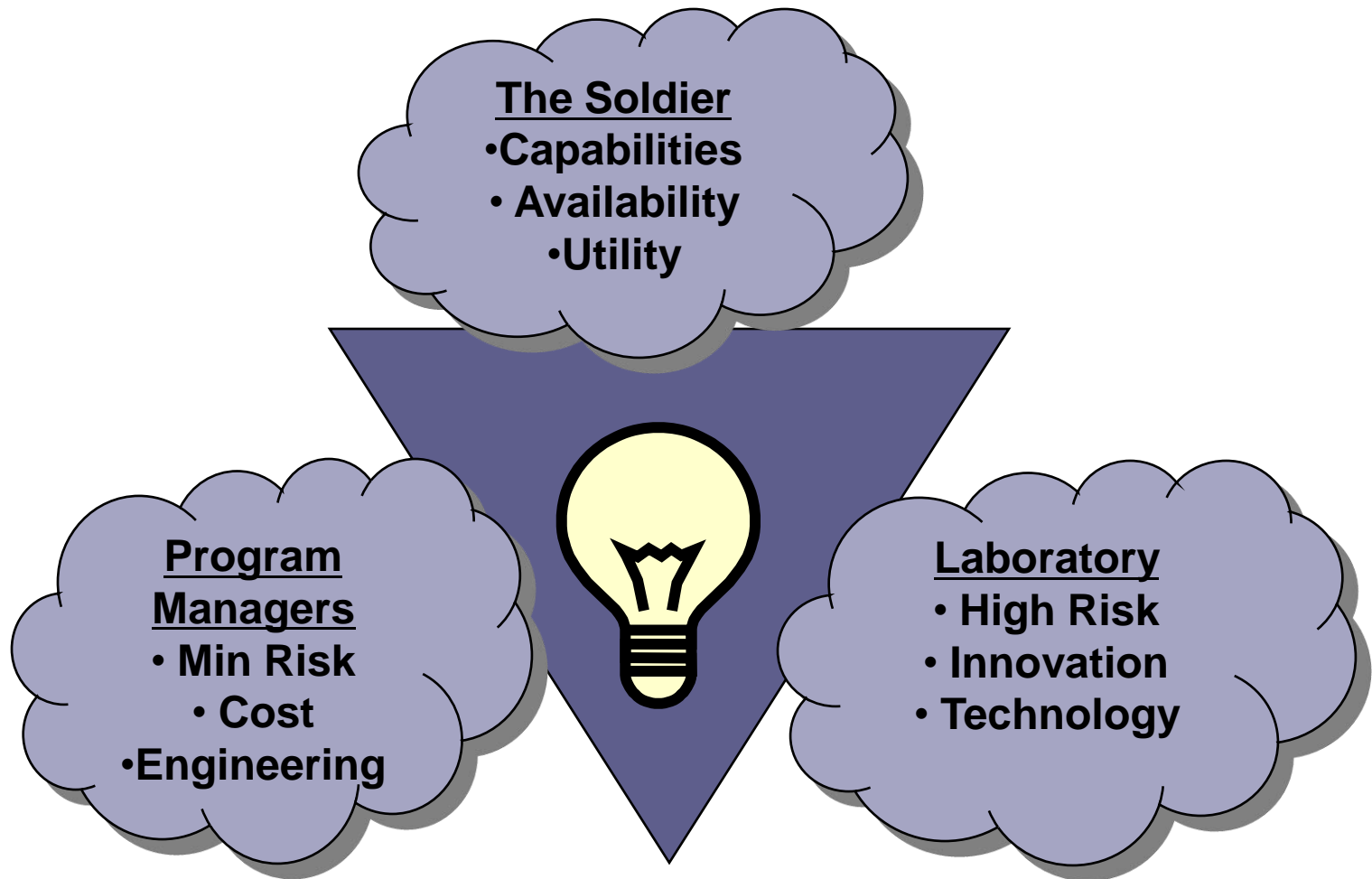


## **Engineering Design**

- Cycle times 3-5 Years
- Requires confidence in materials system
- Risk Averse
- Modeling enables rapid developments in design

**Use of New Materials & Processes only Occurs  
With Mitigation of Risk**

# Technology Dilemma – Differing, Sometimes Conflicting Perspectives/Values



# **Business Transformation**

- ***Standardize ... to significantly enhance the ability to process and share information throughout DoD and the military services.***
- ***Eliminate stovepipes from solution design and deployment.***

Commentary: New focus on business operations across DoD

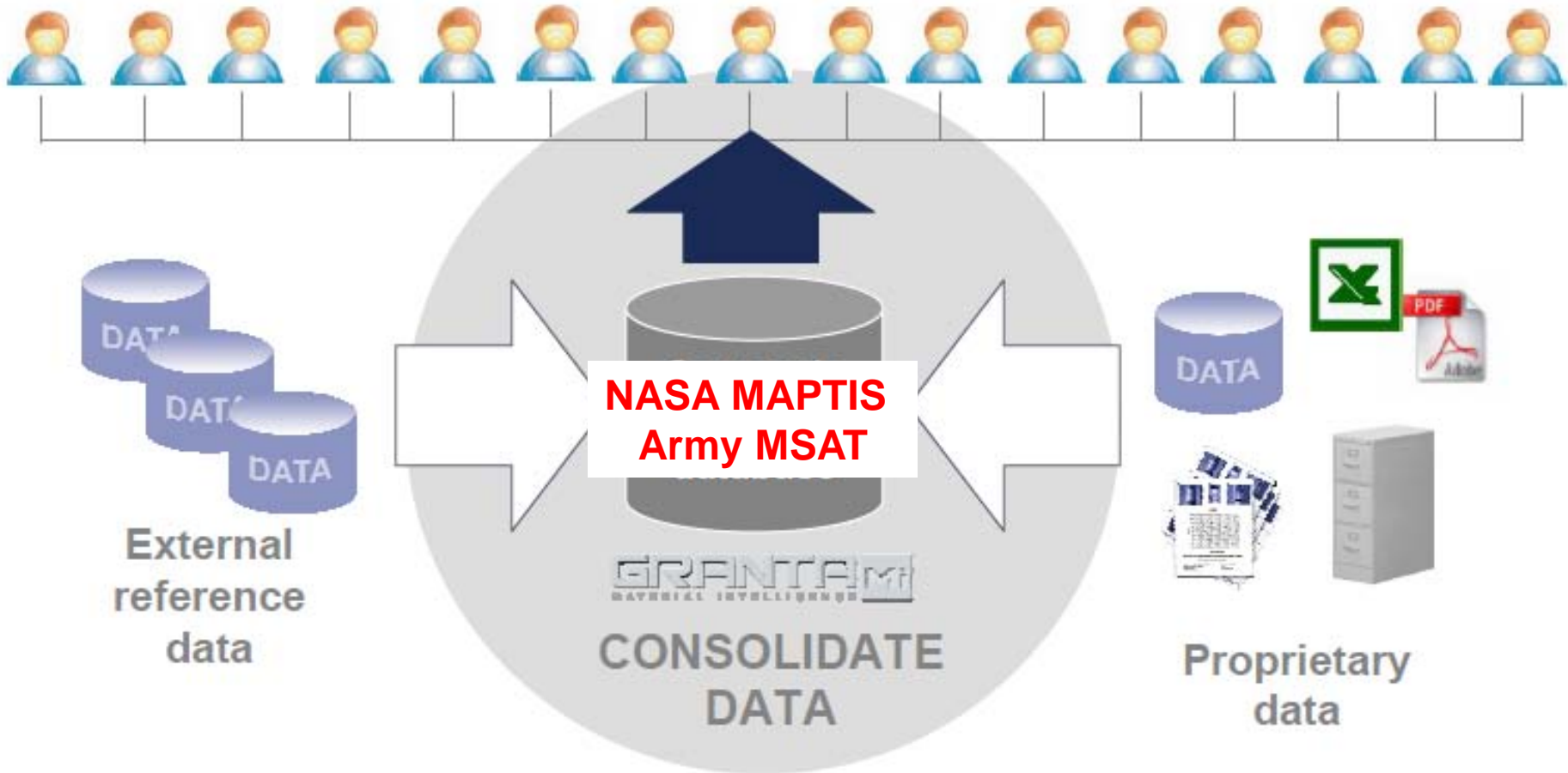
<http://www.federaltimes.com/index.php?S=3937026>

By DAVID FISHER February 08, 2009

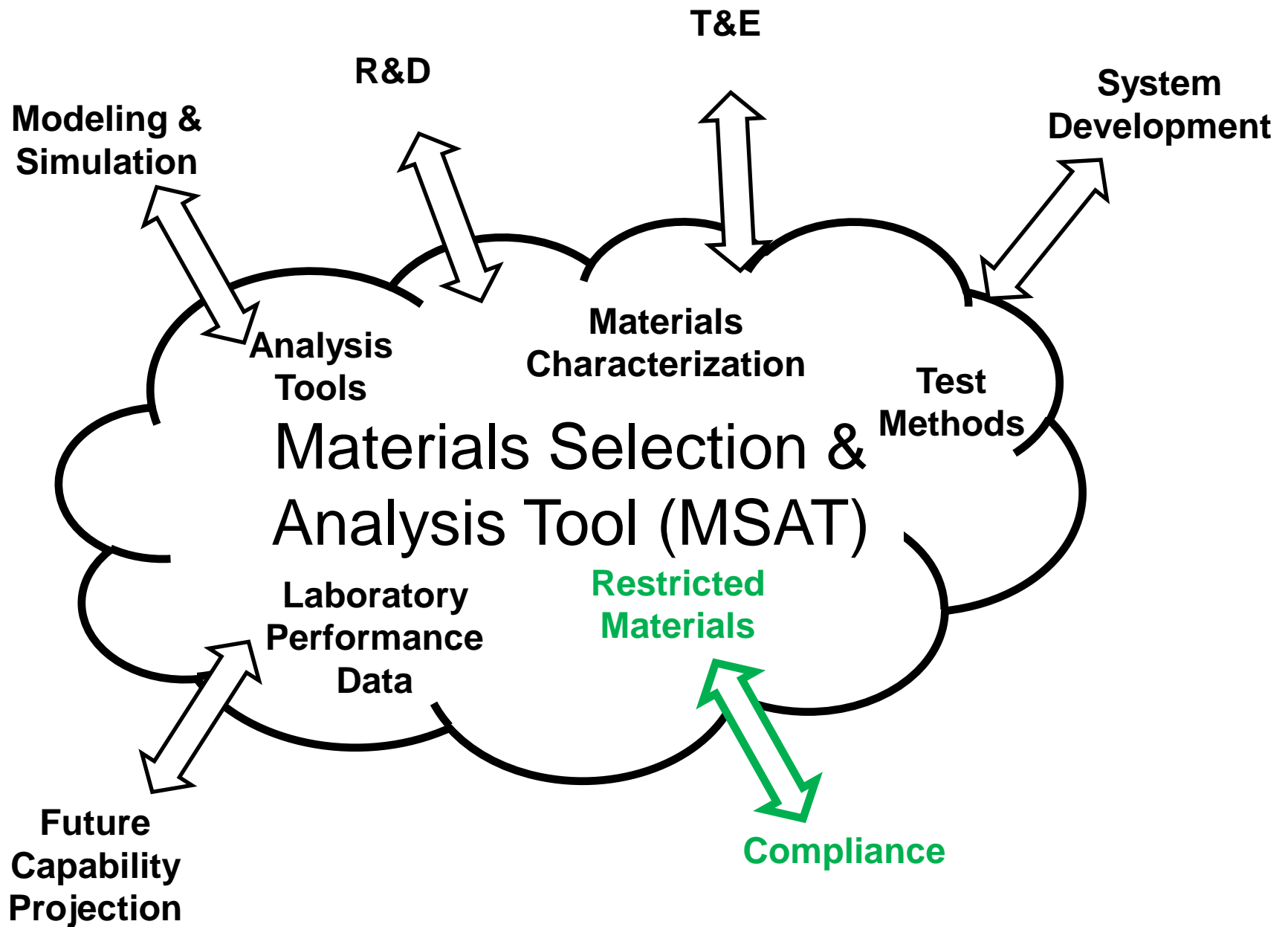


# Efficient Enterprise Access

EFFICIENT ENTERPRISE-WIDE ACCESS



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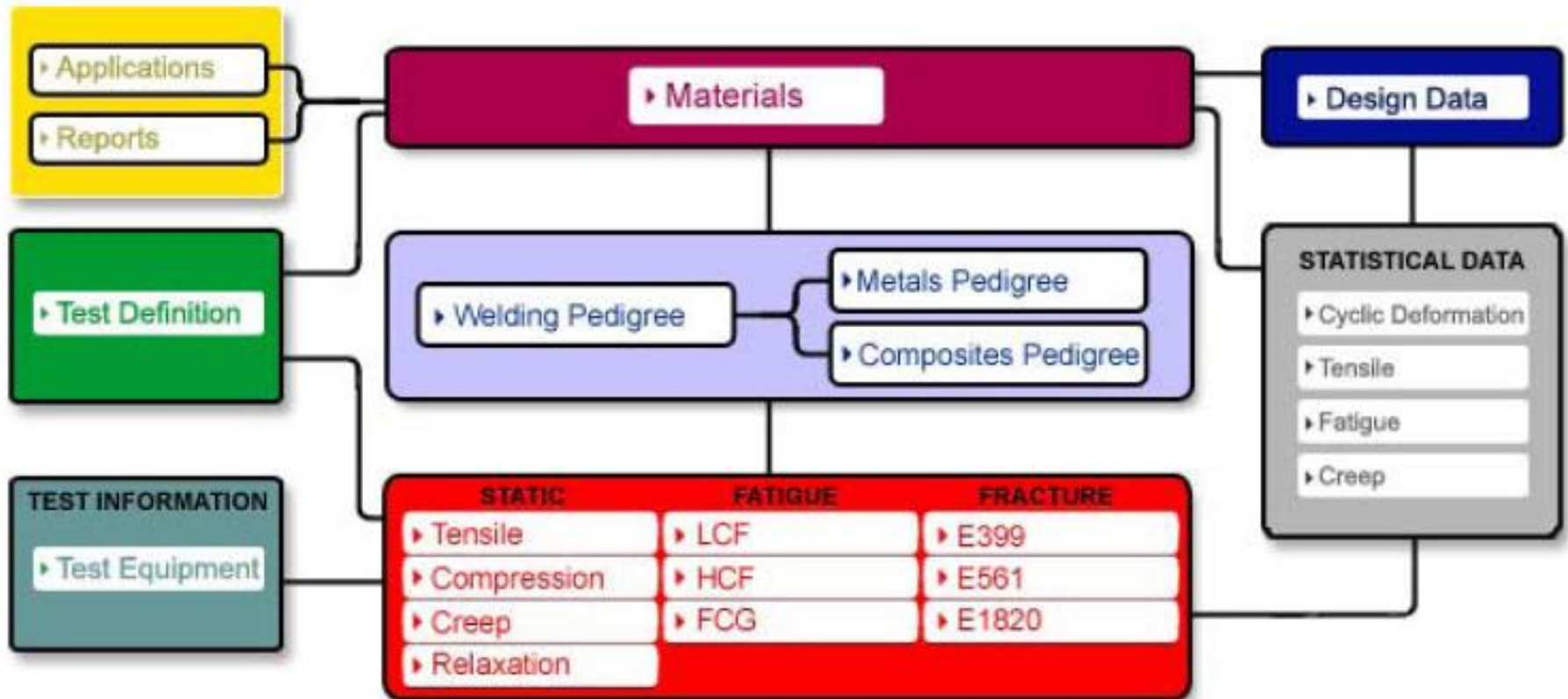
# **ARL Materials Vision**

## **OBJECTIVES**

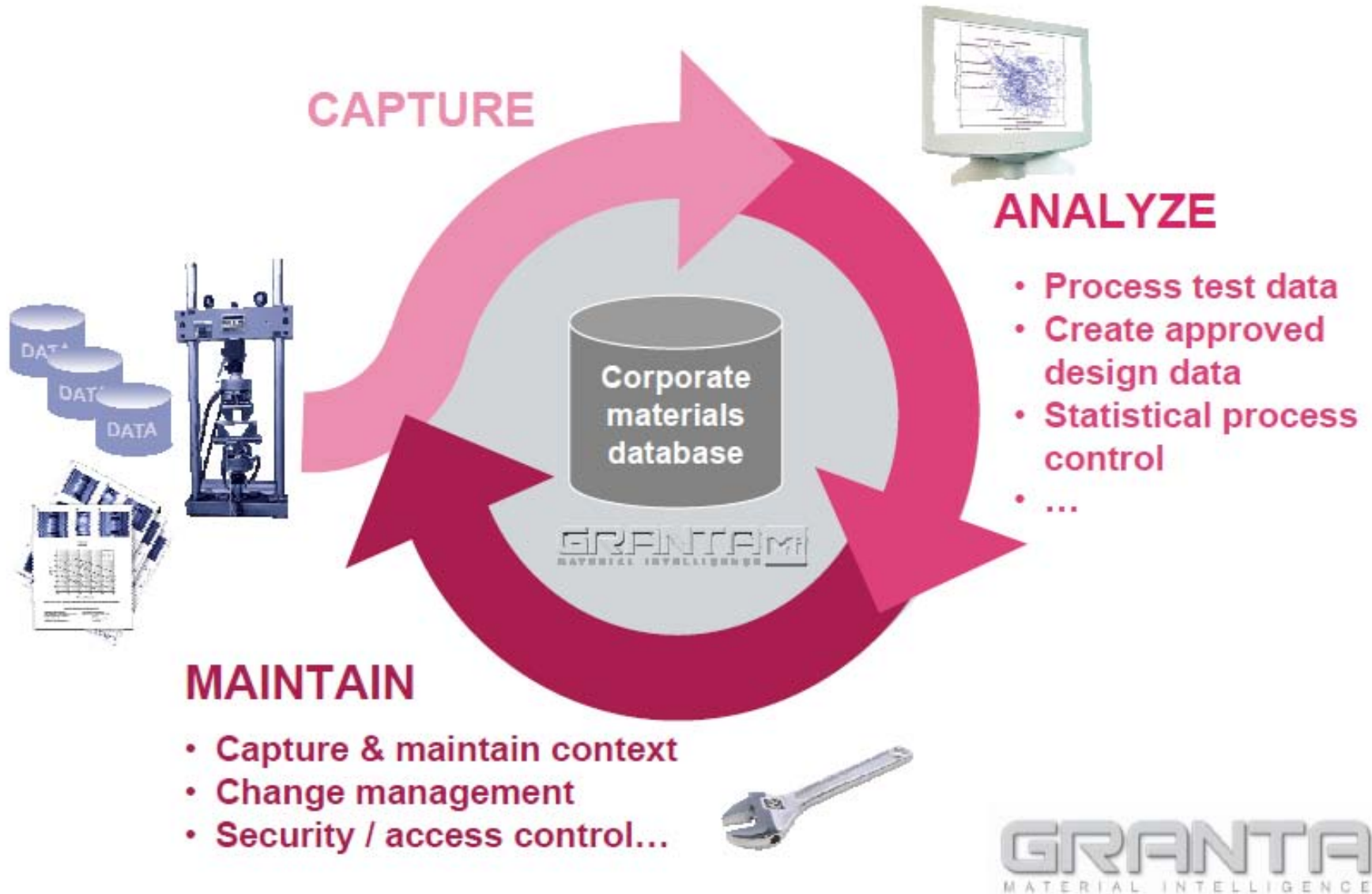
- ***Identify, mature and transition advanced materials solutions***
- ***Develop capabilities to enable the Army to rapidly exploit breakthroughs***
- ***Accelerate the insertion of advanced materials***

# Get the Data

## Challenge: Information Flow



# Manage the Data



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# Distribute the Data



**Ease of access**  
Web browser



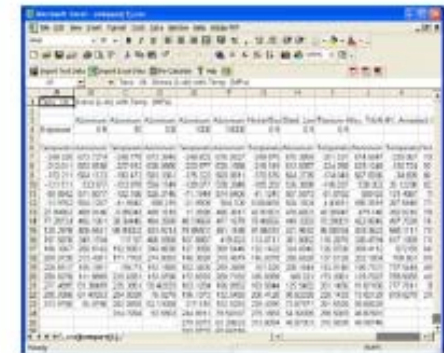
**Fit users' workflows**  
Plug-in, API



**Scalable &  
robust**



**Secure & controlled**



**Desktop integration**  
Data to/from Excel

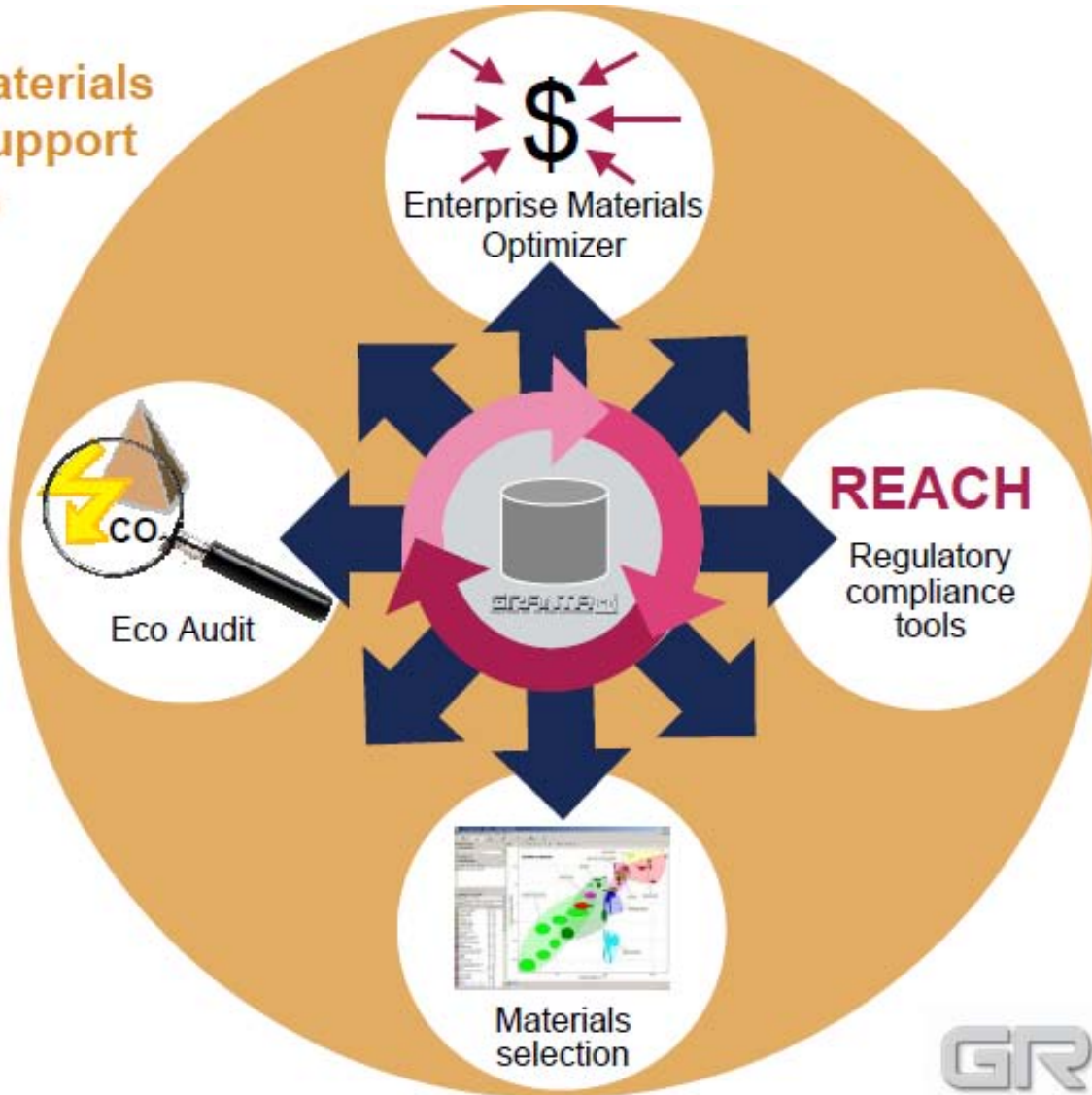
**GRANTA**  
MATERIAL INTELLIGENCE

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# Use the Materials Information

Example materials  
decision support  
tools



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# DoD-NASA Partnership

- MAPTIS - Materials & Process Technical Information System
- MAPTIS is a NASA-wide materials database established for the purpose of recording and disseminating material information
- MAPTIS distributes in-house & commercial databases
- Housed and administered by NASA



# Looking Forward

- **Single source – integrate with existing data sources**
- **Track materials to components through acquisition cycle**
- **Investigate restricted materials use**
- **Target implementation strategies**

# Partner Organization Contacts



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